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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/891,700	06/26/2001	Vijayakumar R. Dhuler	9134-32CT	2751

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EXAMINER

LE, DANG D

ART UNIT	PAPER NUMBER
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2834

DATE MAILED: 12/04/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/891,700

Applicant(s)

DHULER

Examiner

Dang D Le

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 October 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,6-11,35,36,40 and 42-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,6-11,35,36,40 and 42-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 5) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 6) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1, 2, 6-11, 35, 36, 40 and 42-44 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 6, 8-10, 35, 36, 40, 42 and 44 are rejected under 35 U.S.C. 102(e) as being anticipated by Saif et al.

Regarding claim 1, Saif et al. show a microelectromechanical device (Figure 13) comprising:

- A microelectronic substrate (110);
- A thermally actuated micro actuator (100, 116) disposed on said substrate; and comprised of a single crystalline material.
- At least one metallic structure (150) disposed on said substrate and spaced from said micro actuator, wherein said micro actuator is adapted to operably

contact (at the arrow) said at least one metallic structure in response to thermal actuation thereof.

Regarding claim 6, it is noted that Saif et al. also show the micro actuator further comprising:

- Spaced apart supports (R, P) disposed on said substrate;
- At least one arched beam (116) extending between said spaced apart supports;
- An actuator member (100) operably coupled to said at least one arched beam and extending outwardly therefrom; and
- Means for heating (120) said at least one arched beam to cause further arching thereof such that said actuator member (100) moves between a first position in which said actuator member is spaced apart from said at least one metallic structure and a second position in which said actuator member operably engages said at least one metallic structure.

Regarding claim 8, it is noted that Saif et al. also show said micro actuator being thermally activated by external heating thereof.

Regarding claim 9, it is noted that Saif et al. also show said micro actuator comprising a plurality of arched beams (116, 100) coupled together (Figure 5).

Regarding claim 10, it is noted that Petersen et al. also show said micro actuator being comprised of single crystal silicon.

Regarding claim 35, Saif et al. show a microelectromechanical device (Figure 13) comprising:

- A microelectronic substrate (110);
- A micro actuator (116, 100) disposed on said substrate, and comprised of a single crystalline material,
- At least one metallic structure (150) disposed on said substrate adjacent said micro actuator and on substantially the same plane (on the same surface of the paper), wherein said micro actuator is adapted to operably contact said at least one metallic structure in response to actuation thereof.

Regarding claim 36, it is noted that Saif et al. also show the micro actuator being at least one of a thermally actuated micro actuator and an electrostatic micro actuator.

Regarding claim 40, it is noted that Saif et al. also show the micro actuator further comprising:

- Spaced apart supports (R, P) disposed on said substrate;
- At least one arched beam (116) extending between said spaced apart supports;
- An actuator member (100) operably coupled to said at least one arched beam and extending outwardly therefrom; and
- Means for heating (120) said at least one arched beam to cause further arching thereof such that said actuator member moves between a first position in which said actuator member is spaced apart from said at least one metallic structure and a second position in which said actuator member operably engages said at least one metallic structure.

Regarding claim 42, it is noted that Saif et al. also show said micro actuator being comprised of single crystalline silicon.

Regarding claim 44, it is noted that Saif et al. also shows the micro actuator being configured to move between an actuated and unactuated position substantially within the plane (surface of the paper) of the micro actuator and the at least one metallic structure.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saif et al. in view of Carr et al.

Regarding claim 2, Saif et al. show all of the limitations of the claimed invention except for said at least one metallic structure comprising two metallic structures.

Carr et al. show the at least one metallic structure comprising two metallic structures (71, 72) for the purpose of making an electrical switch.

Since Saif et al. and Carr et al. are all from the same field of endeavor, the purpose disclosed by one inventor would have been recognized in the pertinent art of the others.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to make the at least one metallic structure with two metallic structures as taught by Carr et al. for the purpose discussed above.

Regarding claim 7, it is noted that Carr et al. also show said micro actuator being thermally activated by internal heating thereof.

6. Claims 11 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saif et al. in view of Haake.

Regarding claims 11 and 43, Saif et al. show all of the limitations of the claimed invention except for the at least one metallic structure being comprised at least one of nickel and gold.

Haake uses gold in the metallic structure for the purpose of reducing resistivity.

Since Saif et al. and Haake are all from the same field of endeavor; the purpose disclosed by one inventor would have been recognized in the pertinent art of the others.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to make the at least one metallic structure with at least one of nickel and gold as taught by Haake for the purpose discussed above.

Information on How to Contact USPTO

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dang D Le whose telephone number is (703) 305-0156. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on (703) 308-1371. The fax phone

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numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

DDL
December 3, 2002

DL

Dany L. L.